W5YI

America's Oldest Ham Radio Newsletter

REPORT

Up to the minute news from the world of amateur radio, personal computing and emerging electronics. While no guarantee is made, information is from sources we believe to be reliable.

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Fred Maia, W5YI, Editor, P.O. Box 565101, Dallas, TX 75356-5101
Electronic mail: fmaia@internetMCI.com Website: http://www.w5yi.org
Tel. 817-461-6443 FAX: 817-548-9594

In This Issue...

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FCC to Tighten Noose on Scanner Eavesdroppers

Based on a petition from Uniden America Corp., the FCC has proposed to remove loopholes from its rules that may permit illegal eavesdropping on Cellular Radiotelephone Service transmissions. The proposed rules introduce FCC regulation of radio kits and the mandatory "potting" of radio circuits, among other topics.

Operating in the 800-900 MHz band, most cellular transmissions still use analog FM and may be picked up on several devices including scanners, test equipment, older TV sets, VCRs and even cellular phones themselves, when placed in test mode.

Several laws and regulations, prompted by cellular industry lobbying, were supposed to restrict cellular eavesdropping. The FCC banned cellular frequency coverage from scanners in 1993, and the scanners must be "...incapable of readily being altered by the user" to operate within the cellular bands. Even scanners that were made or imported before the rules took effect may not legally be modified to pick up cellular signals.

The manufacture or importation of scanners (and frequency converters used with scanning receivers) that cover the cellular bands has been prohibited since April 26, 1994. The Communications Act prohibits manufacture, assembly, modification, import, export, sale, or distribution of any scanner that is "intended" for interception and divulgence or "beneficial use" of wireless telephone conversations. Other federal and state statutes also apply.

But apparently these restrictions have not been enough to deter lobbyists from pressing for greater curbs on cellular monitoring. Their latest concern, which led to the Uniden petition, is that even scanners that do not cover the cellular range can receive cellular signals through image frequencies produced by signal mixing. Image frequencies are usually rejected by receiver filters, but insufficient filtering can permit demodulation of a signal from outside the fundamental coverage of the receiver.

"The ability to reject signals other than the tuned or desired signal is a function of the receiver's filtering and other technical characteristics," the FCC said. "This phenomenon is easily controlled for receivers that tune a narrow range of frequencies. However, scanning receivers generally tune a broad range of frequencies and often use different internal tuning techniques for various segments of the overall tuning range. As a result, scanning receivers often present an increased possibility of responding to signals other than the ones to which they are tuned. It is our aim to establish standards for scanning receivers such that they will not pick up Cellular Service transmissions under typical operating conditions."

The FCC proposed an that scanners provide at least 38 dB of rejection of signals in the cellular band, for any frequency to which the receiver can be tuned. Moreover, scanners must not be able to receive a signal level of 5 mV/m or less in the

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cellular bands for any tunable frequency.

"Despite the good faith of manufacturers," the FCC observed, "determined individuals with appropriate technical know-how have sometimes found ways to modify scanning receivers to tune Cellular Service frequencies."

The FCC proposed to require that scanners be designed so that "tuning and control circuitry is inaccessible." The design must be such that any attempt to modify the receiver to receive cellular transmissions will likely render it inoperable. Approaches that would accomplish this aim include "potting," covering the circuitry with epoxy; or to encase the circuitry in a metal compartment that cannot be removed.

Modification of scanners on a "substantial scale" will be considered to constitute manufacture of such equipment, under the proposed rules.

FCC rules define scanning receivers as "radio receivers that automatically switch between four or more frequencies anywhere within the 30 MHz through 960 MHz band and are capable of stopping at and receiving a signal detected on a frequency." But some enterprising inventors might try to circumvent the definition by developing a receiver that is manually tuned, or that switches among only two or three frequencies.

Some models of cellular phone can be programmed from the keypad to operate in a scanning mode. "It is our intent to close any perceived loopholes that might be used to thwart the objectives of our scanning receiver rules," the FCC said, and invited comment as to whether its official definition needs to be revised to cover such devices.

The Commission also proposed to formally exempt "test equipment" from the definition of a scanning receiver. To qualify for the exemption, and to therefore be permitted to receive cellular signals, test equipment would have to not be marketed or sold to the general public, and would have to be used by "professional technical personnel in conjunction with testing of equipment or systems or for scientific investigations."

Kits, too, have not escaped the FCC's gaze. The rules don't require that a party marketing a kit obtain official equipment authorization from the FCC, even though authorization would be required if the finished product were marketed.

"This has led to the practice of parties marketing kits for devices which will not comply with our rules when assembled in order to avoid the equipment authorization requirements," the FCC said, and proposed to ban importation and manufacture of kits capable of receiving and decoding cellular signals.

Comments on the *Notice of Proposed Rulemaking* in ET Docket 98-76 are due July 10, 1998 with reply comments due July 27, 1998. Copies of the NPRM are available on the FCC's web site located at: <http://www.-fcc.gov/oet/dockets/et98-76/>.

NTIA BACKS HAMS ON 420-450 MHz REALLOCATION

Radio amateurs are flooding the FCC with written comments opposing the Land Mobile Communications Council (LMCC) petition RM-9267 calling for reallocation of 420-430 and 440-450 MHz spectrum to private mobile radio services or PMRS *(see W5YI Report, June 15).* These frequencies are primarily allocated to federal use and shared by numerous amateur stations.

Now, the effort by hams to shoot down the LMCC petition has gained some help from the government itself. The *National Telecommunications and Information Administration* (NTIA) in the Commerce Department objects to the petition, according to NTIA comments filed at the FCC on June 5.

NTIA manages the spectrum allocated to federal users. It represents the views of the Executive Branch and other RF-using agencies, especially the Defense Department.

"The Federal Government supports the amateur service operation in the 440 MHz band and other bands as an important adjunct to the National Communications System and the National Weather Service, and with general recognition of the valuable public service performed by amateur radio operators nationwide," the agency told the FCC.

Amateur Radio shares well with radar operations in this spectrum, NTIA said, because radar-produced interference to the amateur service generally can be tolerated. Restrictions are in place against interference by hams to federal operations in the band.

NTIA pointed out that radar use of 420-450 MHz is extensive, not only for the missile-tracking PAVE PAWS system but also for high-power airborne search radars used by the military, the Coast Guard and other federal agencies.

These radars have no operational boundaries and may overfly any part of U.S. territory. "Outside of military use, the aircraft are used for maritime search and rescue and drug interdiction," NTIA said. "Operation of these radars are incompatible with mobile use within the aircraft's radio horizon. The Navy also uses ship borne radars in this band, which may be operated along coastal areas of the U.S. The military operates electronic warfare systems in this band for tactical and training operations, high power command/destruct, flight termination, and drone control systems."

NTIA also took issue with LMCC's suggestion that the use of wind profiler radar (WPR) at 448-450 MHz should be "discouraged." WPR warns of severe wind conditions that affect aviation safety, and is used to study pollution such as acid rain.

Although balloons are still used, WPR is considered an important improvement over radiosondes lofted by

weather balloons. NTIA explained that it carefully selected this band for WPR, and that WPR operation is not experimental, but operational.

"NTIA, recognizing the amateur service operations in the band could be affected, consulted extensively with the amateur community and developed coordination procedures before allowing WPR operations on this frequency. Plans for deploying an extensive WPR network on the 449 MHz frequency are proceeding."

Noting what it called "critical Federal operations" in the 420-450 MHz band, NTIA concluded that it is "inappropriate to consider any reallocation of the band."

NOAA says it needs 70-cm weather spotters

Several other agencies chimed in with comments opposed to the petition. The National Oceanic and Atmospheric Administration noted that amateur operations in 420-450 MHz support "mission critical functions of the National Weather Service (NWS).

"...There are now 150,000 spotters participating in the NWS watch/warning program on an on-call basis when required by emergency conditions, and 119 Weather Forecast Offices are involved each using the facilities of multiple amateur repeaters."

ARRL files reply comments on LMCC petition

Meanwhile, the American Radio Relay League (ARRL), in reply comments on the LMCC petition, said that the petition fails to establish:

- any basis for an allocation to PMRS at 420-450 MHz, to be withdrawn from federal use;
- any compatibility between PMRS and incumbent federal use;
- any compatibility between PMRS and incumbent amateur use in either 420-430 MHz or 440-450 MHz; or
- any justification for displacing established amateur operations in either segment of the band by creation of a primary PMRS allocation.

"The cost of any such amateur displacement would be devastating to the licensed radio amateurs who have substantial personal investment in equipment in regular use in that band, and who consistently use the facilities in that band for public service and public safety functions," ARRL said.

"LMCC apparently has no plan to coordinate with incumbent amateurs in the band, inasmuch as it requests a primary allocation and proposes that amateurs would remain secondary. While LMCC speaks of `some constriction' of amateur use of the 420-450 MHz band after the proposed reallocation, there is really no compatibility whatsoever between PMRS and amateur operation in this context: the amateur operations would simply have to cease," the League concluded.

AMSAT COMMENTS ON LMCC PETITION

AMSAT has submitted comments opposing the petition filed by the LMCC that would undermine amateur use of the 70 centimeter band. In the official response to RM-9267, AMSAT-NA President Bill Tynan, W3XO, first established AMSAT's background as a not-for-profit corporation established in 1969, noting that together with over thirty affiliated organizations throughout the world, AMSAT has constructed, launched and operated over two dozen satellites in the amateur-satellite service, of which many are presently in operation.

Tynan also discussed the Phase 3-D project, noting one of the principal frequency bands that Phase 3D will employ is 435-438 MHz. In addition, another important project, which is destined to make heavy use of 435-438 MHz, is amateur radio involvement on the International Space Station (ISS). The AMSAT-NA response explains how amateur radio has been accepted as an official payload for ISS, and AMSAT, along with amateur groups from a number of countries, is currently actively pursuing designs for equipment to go aboard.

The complete AMSAT-NA response, citing over 18 examples of current and future plans for the 70 cm amateur frequencies can be found at www.amsat.org. -- *AMSAT News Service*

FCC FILES COMPLAINT ON GERMAN QRM

On June 9, the FCC submitted a formal complaint to the Regulierungsbehorde fur Post und Telekommunikation in Mainz concerning harmful interference to the Amateur Service from a broadcasting station in Juelich, Germany, that is operating on 3945 kHz.

The complaint originated with the ARRL Monitoring System (Intruder Watch). The League asked the FCC to act on the complaint on May 19. On June 3 they verified the interference from their own monitoring in Columbia, Maryland.

"While 3950-4000 kHz is a broadcasting allocation in Region 1, the station on 3945 kHz is out-of-band and services operating in accordance with the table of frequency allocations should not have to tolerate interference caused by its operation". -- *D. Sumner, K1ZZ via ARRL Hudson Loop*

SHUTTLE RETURNS HOME WITH KD5CHF

Commander Charles Precourt, KC5YSQ, successfully brought the shuttle Discovery to a safe and on-time landing Friday, June 12 at the Kennedy Space Center in Cape Canaveral, Florida. The flight returned Australian-born US astronaut Andy Thomas, KD5CHF, to earth. Thomas was the last US astronaut scheduled to serve aboard the Russian Mir space station, was said by NASA to be readjusting well to Earth's gravity, after spending over 130 days in the micro-gravity of space. -- *"This Week in Amateur Radio"*

Volunteer Examiner Coordinator Report - 1995 to 1998

Report indicates number of examination sessions, persons examined, total elements administered and average session size for the last four years. Note that the only two months with an increase in the number of applicants and exam elements administered was May and June 1997. (Shown in **bold** below.) This is because a new Element 2 (Novice) and Element 3A (Technician) question pool went into effect on July 1, 1997. After July 1, the number of applicants and exam elements are greatly reduced. There are about 30% less persons taking ham radio examinations than just two years ago. Not a good trend at all!

	SESSIONS				PERSONS				ELEMENTS				SESSION SIZE			
Month	1995	1996	1997	1998	1995	1996	1997	1998	1995	1996	1997	1998	95	96	97	98
Jan.	942	845	812	738	8330	6228	5331	4102	14355	10353	8999	6772	9	7	7	6
Feb.	951	882	921	780	9516	7231	7154	5473	16230	12355	12087	9036	10	8	8	7
March	1067	1084	1035	884	11050	10196	8885	6535	18726	17245	14798	10826	10	9	9	7
April	1080	1088	1082	886	10895	9671	9284	5980	17896	16618	15714	10134	10	9	9	7
May	1089	971	992	846	10043	7557	**7910**	5744	16985	12666	**13297**	9508	9	8	8	7
June	977	914	1165		8045	6748	**9314**		13563	11266	**15215**		8	7	8	
July	837	755	617		6526	5155	3172		11086	8710	5087		8	7	5	
Aug.	821	819	696		6533	5674	4077		11085	9435	6536		8	7	6	
Sept.	921	848	731		6498	5181	3700		11096	8844	6078		7	6	5	
Oct.	840	847	736		6398	5271	4077		10930	8892	6673		8	6	6	
Nov.	889	880	803		6986	6156	4782		12007	10510	7964		8	7	6	
Dec.	845	791	747		6726	5323	4289		11370	9053	7176		8	7	6	
Total:	**11260**	**10724**	**10337**		**97547**	**80391**	**71975**		**165330**	**135945**	**119624**		**8**	**7**	**7**	
		(4.8%)	(3.6%)			(17.5%)	(10.5%)			(17.8%)	(18.2%)					

We update this report about once every six months. Year-to-date: 28834 persons were examined at VEC sessions this year versus 49834 in 1995 - **a 42% decline.** (And 45% less examination elements were administered than in 1995.) At press time, we had not received the VEC statistics for the month of June 1998. Note (below) that over 1 million applicants have been examined since the beginning of the VEC program in 1984.

Examinations Administered Under VEC System by Year - 1984 to Present

Date	Sessions	% Inc.	Persons	% Inc.	Elements	% Inc.	Pass Rate
1984	413		8599		12633		47.5%
1985	3223	680.4%	41439	381.9%	62589	395.4%	58.2%
1986	3784	17.4%	42422	2.4%	61921	(1.1)%	59.7%
1987	4378	15.7%	49728	17.2%	81042	30.9%	60.6%
1988	4903	12.0%	53546	7.7%	89788	10.8%	61.0%
1989	5486	11.9%	57417	7.2%	96092	7.0%	61.5%
1990	6250	13.9%	64737	12.7%	105763	10.1%	60.8%
1991	8118	29.9%	103251	59.5%	172061	62.7%	66.2%
1992	10016	23.4%	115852	12.2%	193521	12.5%	65.6%
1993	10848	8.3%	113028	(2.4)%	193911	0.2%	65.0%
1994	11638	7.3%	106670	(5.6)%	194584	0.3%	65.2%
1995	11260	(3.2)%	97547	(8.6)%	165330	(15.0)%	55.2%
1996	10724	(4.8)%	80391	(17.6)%	135945	(17.8)%	55.0%
1997	10337	(3.6)%	71975	(10.5)%	119624	(12.0)%	53.1%
Total	**101378**		**1006602**		**1684804**		**59.6%**

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July 1, 1998

CUTTING EDGE TECHNOLOGY

■ **Low priced embedded chips are going to change the way everything works,** from cars to clothes to commodes, say the futuristic folks at the MIT Media Lab. "The improvement of sensors that connect chips to their applications is going to drive all of this," says Paul Saffo, director of the Institute of the Future. "We're at the beginning of a sensor revolution." Likely products that we'll see in the next 10 to 20 years, including smart skis with chips that allow you to adjust the skis' flexibility via a button on the ski pole; all-knowing appliances like ovens that know exactly how long to cook a casserole and dryers that stop when the clothes are dry -- even robotic vacuum cleaners guided by micropower-impulse radar that can clean your house while you watch TV; smart toilets that can analyze urine and send reports to your doctor's office (or tell you your blood alcohol content after a few beers); and smart labels that can tell you when to take your pills, how long ago you bought that ham, and where you put your garage door opener. *(Clint Willis, "25 Cool Things You Wish You Had... and Will," Forbes ASAP 1 Jun 98) <http://www.forbes.com/>*

EMERGING COMMUNICATIONS

■ **The Motorola-backed Iridium LEO satellite network** announced that it has signed agreements with 209 wireless service companies around the world and that it will launch the world's first satellite-based telephone system on Sept. 23. The agreements give Iridium access to more than 72 million subscribers worldwide. Last month, Iridium completed the deployment of its 66 satellites that make up its global communications network. It is going to be interesting to see just how successful Iridium is! Phone calls will be able to be made from the most remote and desolate places on Earth. (Did you know that 85% of the world's people have never made a telephone call!) The 10-oz. hand-held telephones cost $3,000 each!

■ **Motorola is canceling its LEO broadband Celestri network and "redirecting" its resources into the Teledesic LEO network** being built by Craig McCaw and Microsoft's Bill Gates! The mesh of interconnected low earth orbit satellites will form the "Internet in the Sky."

■ **Some C-block (small business) companies that bid at FCC auctions** for commercial wireless spectrum can't come up with the cash to pay for it. At least three bidders have already filed for Chapter 11 bankruptcy protection rather than accept the financial-restructuring options offered by the FCC. One such large bidder, NextWave Telecom, Inc. bid $4 billion for PCS licenses in 56 markets. FCC chairman Bill Kennard said in a written statement, "NextWave's announcement underscores again the urgent need for Congress to make clear that the licenses to use the public's airwaves are public assets, not private property that can be tied up in bankruptcy.

■ Is low-priced unlimited Internet access on the way out? The answer is "yes" if you want fast speed! **Sprint Corp. has unveiled their new Asynchronous Digital Subscriber Line (ASDL) Integrated On-Demand Network.** "ION" permits phone calls, video, faxes and high speed Internet access over the same line at the same time. It will be available to business later on this year ...and to consumers next year. Billing will be based on monthly traffic passed over the system and customers will have to purchase a $200 metering device which will be sold by Radio Shack. Sprint has been working on the $2 billion network (code named "Project FastBreak" for more than 5 years. Internet (receive) speeds will be up to 200 times faster than a 28.8 kbs modem ...and 50 times faster back (uplinked) to Sprint's network.

■ Telephone rates are dropping like a rock! **AT&T introduced their 10¢ a minute 24-hours a day "One-Rate" plan a couple of weeks ago.** The new plan carries a $4.95 monthly charge. And AT&T is planning to begin their own "dial around" service. AT&T said it loses $1 million a day to MCI Corp.'s 10-321 service. A "dial around" service lets you bypass your current long distance carrier.

COMPUTER INFO

■ **Located in the middle of nowhere, Sioux Falls, South Dakota PC maker Gateway 2000 is in the process of opening showrooms** across the United States that display systems but do not carry premade computers in inventory for sale. Customers make out their "laundry list" of what they want their computer to contain, place their orders and get a custom configured PC - complete with installed application software - delivered in a few days by UPS.

Gateway offers obsolescence protection by allowing credit toward a new system at any time between two and four years of the original purchase. They are also the only PC manufacturer that is also a nationwide Internet Service Provider (ISP). Their 56K "Gateway.Net" is $14.95 per month for unlimited access. And Gateway offers installment financing.

75% of Gateway's customers repurchase computers from the firm. According to the June 15th *Wall Street Journal,* they have now moved into first place as the PC industry's leader in customer loyalty. Coming in second was Hewlett-Packard. Apple Computer - which was number one, tumbled into third place. On the other end of the scale, Packard-Bell's PC "repurchase rate" plunged to 33% -- "...suffering from lingering consumer perceptions that its quality and service lags behind the competition."

Founded in 1985 by Sioux City, Iowa cattleman, Ted Waitt - Gateway 2000 now employs 13,000 people worldwide and 1997 sales topped $6.3 billion! (Tel. 1-800-846-4208

■ PC penetration continues to grow as computer prices slip below $1,000. **The number of U.S. households with at least one personal computer now stands at 45 million.** As of January 1998, 44.8 percent of all homes owned a PC. Seventy percent of higher income people have one (...only 25% of households with an income below $30,000.) Thirty-six percent of all PCs sold today are sub-$1,000 units. Web-browsing and E-mail are the killer applications for the average consumer. And the low cost PC can easily handle those tasks. The full function $500 computer is next.

INTERNET NEWS

■ **"Anyone With A Modem Can Report On The World"** is the title of a June 2nd address by Internet journalist Matt Drudge before the prestigious National Press Club in Washington DC. It was also televised on CSPAN and broadcast on National Public Radio.

Matt Drudge is the 31-year-old chronicler of ***The Drudge Report,*** an Internet site packed daily with gossip, tidbits and information on everything from the latest scandal in Washington to the latest Neilsen ratings. He scooped the national news media on Bob Dole's selection of Jack Kemp as his running mate and Connie Chung's ouster at CBS. And it was *The Drudge Report* that first reported President Clinton's purported affair with White House intern Monica Lewinsky.

Matt Drudge has no training in journalism and never went to college. His primary source of information is more than 1,000 daily E-mail tips. Drudge's methods are suspect in the eyes of most journalists. He moves with the speed of cyberspace, and critics charge he has no time to know his sources or check his facts. Drudge claims to get up to 1 million hits a day on his website!

The Internet is changing how the world does everything ...including journalism. Read Matt Drudge's interesting side of the story at: <http://www.frontpagemag.com/Articles/drudge.htm>)

■ About $1 billion a year in travel sales is booked by the public on Internet web sites. A large research firm says this will increase ten-fold within four years. **The two biggest "travel" sites on the Internet are Travelocity and (Microsoft's) Expedia.** Travelocity is a site operated by SABRE, AMR's reservation system. (AMR is the parent of American Airlines.) They tap into existing travel information and do (no more or less) than what any corner travel agent can.

Expedia is different. They offer deals that can't be found anywhere else since they develop their own travel promotions and handle the reservations on systems other than SABRE. It is no surprise that Expedia has quickly become public enemy No. 1 of travel agents! They plan to generate $1 billion in travel sales by 2001. -- *(Source: Fortune, May 11, 1998, p. 163-4)*

WASHINGTON WHISPERS

■ **Vice Pres. Al Gore wants the federal government to use "plain language"** in its forms, directives, regulations and letters aimed at the American people.

On June 1, 1998, as part of the "Reinventing Government" movement, Pres. Clinton issued a memorandum to all federal agencies entitled: **"Plain Language in Government Writing."**

In it is a timetable for converting "legalese" to an easy-to-understand "user-friendly" format. By October, all new documents must be in "plain language." And by 2002, all documents created before October 1998 must undergo a re-write. All new rules issued after January 1, 1999, must be written in "plain language."

The GSA's *Office of Government-wide Policy"* has also set up a "Plain Language Action Network" (PLAN) site on the world wide web to assist agencies with better communication with the public.

While intended for internal government use, the site is also open to the public at: <http://plainlanguage.gov/> (We found an excellent manual on this site on how to write clearer documents. It is worth reading.)

Al Gore is also establishing a monthly "Gobblygook Elimination Award" which goes to the federal employee best eliminating confusing and verbose writing. (It is a turkey head in a circle with a diagonal line through it.)

■ Cheap Internet hookups aren't cheap! **Expect to pay a hidden tax called the "e-rate (education) surcharge" which will be showing up on your telephone bill beginning in July!** The Clinton Administration's "universal service" program requires long distance telephone companies to subsidize Internet access for schools and libraries ...and to keep basic phone bills for rural and low income households affordable.

The program is part of President Clinton's goal of wiring all of the nation's schools to the Internet by the year 2000. A staggering 30,000 schools have already applied for the federal subsidies and the cost is far higher than planned.

Fearing higher phone bills to the nation's consumers, the multi-billion dollar program is now being opposed by some lawmakers ...even though they ordered it as part of the sweeping 1996 telecom-reform law.

Only $625 million of the more than $2 billion subsidy has been collected so far. The cost was supposed to have been offset by reductions in the access charges that long distance telephone firms pay local phone companies. But at least two long distance firms (AT&T and MCI) said they would be raising rates to cover costs.

On June 12, the FCC voted along party lines to retain - but scale back - school/library Internet funding. The two Republican commissioners voted against the plan. Opponents are referring to the 90% discounted Internet fees as the "Gore Tax."

Only $650 million will be collected during the balance of this year which will bring the 1998 total to $1.275 billion - far short of the $2.25 billion the FCC says they need. To remedy the shortfall, the collections from the phone companies will be extended into next year. By June 1999, nearly $2 billion will be available to subsidize the nation's school Internet connections. After that, funding will run on a fiscal year basis.

The FCC said the cutback will not increase phone bills. But the telephone companies say otherwise. They still plan to prorate the additional charges they pay on your phone bill and they are not prevented from doing so.

■ Get ready for a new cable TV access system! Your set-top box is about to go bye-bye! And lost TV remote controls will be joined by "cable access credit cards."

On June 11th, the FCC adopted rules that will **permit cable TV boxes that work on any cable system in the country to be incorporated into TV sets, VCRs and other video devices ...or sold as a stand alone unit.** Effective July 2000, you will be able to purchase a universal cable TV set-top box in much the same fashion as you purchase a replacement telephone today.

The new system will require users to obtain a magnetic "credit card" -- sometimes referred to as a "pod" -- from the cable company that when inserted, activates video programming for a monthly fee. Instead of the set-top device providing security, it will come from the card, the use of which will be regulated by the FCC. At present, the nation's 67 million cable households rent cable set-top boxes from their local cable system.

To create a market for the new "credit card-like" system, cable operators will be prohibited from selling or leasing cable boxes with built in unique security "microchips" that scramble signals beginning January 1, 2005.

A wide range of products, features and competition should drive down the cost. Electronic retailers like the idea, but the NCTA (National Cable Television Association) does not! The new rules apply to both analog and digital cable set-top

boxes.

■ **The current deregulatory environment apparently requires more regulations.** New and proposed rules are printed daily in the Federal Register. Last year, the Federal Register contained one-third more rules than ten years ago.

■ New "Net Registry" to begin operation on October 1, 1998. **The Clinton Administration has proposed formation of a new private non-profit international corporation to regulate Internet names.** The corporation will be made up of 15 "Internet stakeholders." Currently all domain names are managed by a single company, Network Solutions of Herndon, VA.

■ Ham operator named as FCC Bureau chief! **FCC Chairman William Kennard has named Dale N. Hatfield, WØIFO as the new Chief of the FCC's Office of Engineering and Technology.** Hatfield has wide experience in the telecommunications and spectrum management field and has held positions at both the FCC and the NTIA during the 1970's and 80's. Since 1982, he has taught telecommunications at the University of Colorado and operated a telecommunications consulting firm in Boulder. He assumes his new post on July 6th.

AMATEUR RADIO

■ **Ham operators replace satellite-based pagers.** *USA Today* reported that the Salvation Army in Boston pressed ham operators into service when firefighter and Red Cross pagers were knocked out.

Ninety percent of the nations 45 million pagers stopped working in mid-May when a $250 million satellite lost track of Earth. The Salvation Army Emergency Radio Network had been preparing for damaged power and telephone lines. They never thought it would be a satellite outage.

■ **SKYWARN Nets activated.** Severe storms struck Northern New Jersey and Eastern New York on May 28th causing severe thunderstorms, hail and heavy rain. Tornadoes also touched down in several counties.

Saratoga County was the most severely damaged when a twister -- with winds estimated at over 200 MPH -- cut a swath up to a mile wide and destroyed or damaged more than 75 homes and businesses.

SKYWARN nets were conducted by the Troy Amateur Radio Association 145.17 and 444.225 repeaters before they were knocked off the air. 145.33 was used as backup. Emergency nets were being conducted by TARA members as hams staffed numerous American Red Cross shelters in and around the city.

Operations at Albany International Airport were temporarily curtailed after a funnel cloud sighting. The National Weather Service in Albany was investigating over a dozen reported tornado sightings.

In Northern New Jersey, hail ranging from pea-to golf ball-size were reported as several SKYWARN nets were activated. *(Thanks: Hudson Loop)*

■ The June 9th *Los Angeles Times* carried a story about **Hamwatch -- a volunteer crime fighting team of about 25 ham operators established in 1986** by the Santa Clarita, California Sheriffs Dept. Members of the group were selected because of their amateur radio communications skills.

They are used primarily for surveillance work in high crime areas. Hamwatch has assisted in the arrests of car break-in thieves, graffiti vandals, drug dealers and liquor store owners who sell alcohol to minors.

"Hamwatch members participate in stakeouts and sting operations and check out vacant homes while residents are on vacation. ...[members] of the team are trained not to confront suspects. Instead, they radio their observations to deputies deployed nearby."

Hamwatch team members use small hand-held radios programmed with different frequencies each night making their communications almost impossible to follow. "It gives us a real sense of community involvement," said Del Andreini, KD6NOE of Valencia, CA who has devoted more than 2,100 hours to Hamwatch.)

■ **Twice a year we use the VE/VEC exam statistics and census of ham operators by license class to give you our reading on how the Amateur Service is doing and where it is going.** All of these conclusions are based on FCC-supplied licensing and census figures.

(Keep in mind that the FCC census includes about 41,000 amateurs whose license has expired, but still in the two year grace period.)

(1.) The total number of amateurs grew by less than 1% during the past year (June 1997 to June 1998.) It is the smallest gain since we starting keeping licensing records (1978.) Nearly half of U.S. states had a net loss.

(2.) The license classes that require Morse code proficiency (all except the Technician Class) had a net loss of 2.3%. The good news is that the Technician Class grew by 7.5%. One amateur in four -- 25.7% -- is now a Codeless Tech.

(3.) In February 1991 (when the No Code Tech Class began), the U.S. Amateur Service census stood at 504,360. It is now 718,382, a gain of 214,022. The Technician Class went from zero to 184,979 during this period and accounts for nearly 90% of the increase.

(4.) Nearly all newcomers to the hobby elect to enter via the Codeless Technician route. Extremely few begin as a Novice operator today.

(5.) More than a third -- 36.8% -- of all radioamateurs reside in only five states! (California 109,778, Florida 43,674, Texas 43,240, New York 35,811, and Ohio 32,216.)

(6.) The large northeastern states are suffering the largest ham operator losses: Connecticut, New York, Pennsylvania, Massachusetts, New Jersey... The biggest gains are coming from Northwest/Rocky Mountain states: Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, Wyoming...

(7.) The shift away from Morse communications continues. A majority of the amateur population -- 56.8% -- hold no code/slow (5 wpm) code tickets. This percentage has been increasing yearly. Ten years ago (1988), 59.4% of all amateurs held fast code (13/20 wpm) ham licenses. (Twenty years ago, two-thirds of all amateurs were fast code operators.)

(8.) The number of persons taking Amateur Radio license examinations peaked in 1992 when 115,852 applicants were tested. The number has been decreasing steadily since then. Only 61,245 applicants were examined during the period June 1, 1997 to May 31, 1998 -- nearly a 50% decrease!

The FCC is in the process of issuing a Notice of Proposed Rulemaking (NPRM) which is "rumored" to suggest a new line up of fewer Amateur Radio license classes with less emphasis on Morse proficiency. It could be out any day now. It will be interesting to see what is proposed. We will keep you posted.

AMATEUR SERVICE CENSUS - INDIVIDUAL STATIONS - JUNE 1, 1998 vs. JUNE 1, 1998

State	Extra		Advanced		General		Tech Plus		Technician		Novice		Total		%
	6/97	6/98	6/97	6/98	6/97	6/98	6/97	6/98	6/97	6/98	6/97	6/98	6/97	6/98	Inc.
AL	1179	1202	1686	1670	1756	1748	2300	2257	3119	3343	842	733	10882	10951	+0.6%
AK	341	345	514	501	614	607	576	562	897	1006	363	333	3305	3354	+1.5%
AZ	1610	1650	2553	2554	2547	2629	3092	3053	4485	4801	1083	990	15470	15677	+1.3%
AR	777	787	1049	1048	1060	1044	1352	1326	2110	2259	538	489	6886	6963	+1.1%
CA	8950	9017	15353	14987	15892	15331	23119	22586	31240	33871	14977	13986	109531	109778	+0.2%
CO	1295	1332	2102	2078	2053	2062	2441	2449	2886	3151	1126	1036	11903	12108	+1.8%
CT	1139	1137	1489	1425	1853	1600	1824	1789	1597	1668	1428	1321	9330	9140	(2.0%)
DE	208	209	234	228	285	279	332	336	291	306	176	152	1526	1510	(1.0%)
DC	75	73	91	86	123	120	68	70	67	73	59	54	483	476	(1.4%)
FL	4531	4678	7851	7778	9260	9171	8352	8306	7803	8296	5963	5446	43760	43674	(0.1%)
GA	1634	1659	2555	2544	2590	2573	3248	3230	3588	3858	1304	1202	14919	15066	+1.0%
HI	335	343	491	488	548	533	696	681	693	792	612	549	3375	3386	+0.3%
ID	360	376	600	602	713	716	790	801	1255	1406	340	310	4058	4211	+3.8%
IL	2681	2702	4038	3912	4585	4413	5056	4960	5277	5657	3001	2679	24638	24323	(1.3%)
IN	1547	1560	2351	2301	2724	2684	3561	3516	3755	4021	1735	1599	15673	15681	+0.1%
IA	762	783	1399	1361	1431	1380	1238	1214	1331	1424	929	841	7090	7003	(1.2%)
KS	755	758	1150	1128	1502	1495	1528	1529	1893	1997	864	767	7692	7674	(0.2%)
KY	951	966	1216	1197	1440	1430	1852	1858	2578	2723	1039	970	9076	9144	+0.7%
LA	858	856	1310	1278	1327	1296	1485	1428	1731	1823	776	696	7487	7376	(0.1%)
ME	514	524	694	688	1011	975	833	849	1015	1070	478	441	4545	4547	+0.0%
MD	1522	1549	2202	2142	2166	2089	2384	2400	2421	2567	1286	1189	11981	11936	(0.4%)
MA	2106	2114	2626	2514	3209	3091	3276	3250	2794	2985	2010	1864	16021	15818	(1.3%)
MI	2321	2366	3564	3485	4156	4054	4523	4482	5112	5490	2171	1943	21847	21820	(0.1%)
MN	1213	1243	1966	1943	2240	2158	2167	2151	2391	2565	1077	971	11054	11031	(0.2%)
MS	528	550	826	819	852	816	905	902	1321	1402	470	429	4902	4918	+0.3%
MO	1485	1511	2192	2147	2546	2500	2512	2482	3124	3432	1287	1158	13146	13230	+0.6%
MT	328	335	477	473	570	566	537	548	843	918	307	282	3062	3122	+2.0%
NE	405	410	754	731	938	904	803	807	798	866	405	364	4103	4082	(0.5%)
NV	452	477	693	714	828	844	849	878	1229	1329	325	311	4376	4553	+4.0%
NH	700	710	743	738	937	915	1071	1048	1104	1179	498	466	5053	5056	+0.1%
NJ	2237	2243	3057	2983	3324	3194	3733	3646	3047	3213	2278	2121	17676	17400	(1.6%
NM	617	616	927	930	856	848	928	938	1609	1736	303	273	5240	5341	+2.0%
NY	3873	3862	5531	5357	6488	6297	7353	7207	7627	8066	5663	5022	36535	35811	(2.0%)
NC	1980	2069	2916	2903	3088	3047	3635	3635	4786	5125	1847	1812	18252	18591	+1.9%
ND	161	158	240	239	366	352	349	342	389	419	200	179	1705	1689	(0.9%)
OH	3291	3321	4859	4722	5426	5331	7707	7613	7561	8043	3465	3186	32309	32216	(0.3%
OK	981	985	1484	1447	1433	1386	1929	1901	2742	2932	940	851	9508	9502	(0.1%)
OR	1324	1345	2149	2121	2677	2611	2651	2679	3034	3390	1332	1175	13167	13321	+1.2%
PA	3138	3166	4395	4266	5029	4912	5438	5386	4992	5271	2964	2698	25956	25699	(1.0%)
PR	301	306	585	575	801	809	2376	2331	824	926	3888	3471	8775	8418	(4.1%)
RI	352	360	355	348	507	495	619	612	426	453	355	317	2614	2585	(1.1%)
SC	749	783	1101	1108	1331	1343	1420	1413	1584	1704	586	546	6771	6897	+0.2%
SD	182	187	305	302	355	344	288	286	336	368	152	138	1618	1625	+0.4%
TN	1578	1626	2331	2287	2306	2290	3235	3224	3606	3834	1252	1138	14308	14399	+0.6%
TX	4929	5034	7447	7366	7570	7393	8770	8735	10557	11350	3731	3362	43004	43240	+0.5%
UT	519	524	866	821	761	761	1738	1746	3384	3744	655	591	7890	8187	+3.8%
VT	269	275	326	316	427	416	423	415	616	655	200	185	2261	2262	+0.0%
VI	53	50	49	50	83	75	57	57	75	84	38	33	355	349	(1.7%)
VA	2171	2200	3032	2992	3024	2991	3512	3540	3780	4100	1751	1612	17270	17435	+1.0%
WA	2490	2544	3760	3678	4433	4357	5214	5154	6516	6942	2614	2383	25027	25058	+0.1%
WV	615	645	731	713	936	948	1282	1279	2150	2346	672	607	6386	6538	+2.4%
WI	1214	1235	1817	1816	2119	2059	2014	2046	2613	2846	1086	973	10863	10975	+1.0%
WY	186	197	235	228	291	282	310	307	454	499	157	148	1643	1661	+1.1%
Other	185	190	153	156	182	192	260	262	634	656	187	119	1601	1575	(1.6%)
6/97	**74,957**		**113,387**		**125,669**		**148,011**		**172,092**		**83,795**		**717,899**		
6/98		**76,153**		**111,286**		**122,955**		**146,504**		**184,979**		**76,515**		**718,382**	**+0.7%**
% Increase		**+1.6%**		**(1.9%)**		**(2.2%)**		**(1.0%)**		**+7.5%**		**(8.7%)**			
'95 %	10.3%		16.6%		18.4%		19.8%		21.2%		13.7%		100%		
'96 %	10.3%		16.1%		17.8%		20.8%		22.6%		12.4%		100%		
'97 %	10.4%		15.8%		17.5%		20.6%		24.0%		11.7%		100%		
'98 %	10.6%		15.5%		17.1%		20.4%		25.7%		10.7%		100%		

WAS IT THE UK RADIO REGULATORS OR THE RSGB That asked for a change in Morse Code testing

There might be more to the story than a mere change of heart on the part of the Radio Society of Great Britain as far as Morse code proficiency is concerned.

You will remember that we reported in our June 1st issue that the RSGB had confirmed their new position that they would no longer be supporting Morse code proficiency as a licensing requirement for HF operation. RSGB president Ian Kyle GI8AYZ advised their membership of their change of direction via a "leader" article in the June issue of RadCom, the RSGB journal.

We have now been furnished with copies of an exchange of letters between a persistent British amateur and the UK Radiocommunications Agency (RA). On April 7, 1998 the amateur advised the RA "...that the continuation of the Morse code proficiency examination served no practical purpose. My attempt to stimulate the RSGB in correspondence has met with almost total silence." The RA responded to the letter on April 15th with:

"There are a number of arguments for and against the need for the Morse code test and this is a matter we are currently discussing with the RSGB. We asked the amateur radio community in 1993 to submit their views on the requirements to the Agency and the RSGB carried out a independent survey of its members at the same time. The overall result was that the majority of Class A [all band] Licence holders wished to retain the Morse test whilst the majority of Class B [No code VHF/UHF] License holders wished to see the requirement removed.

"More recently, a proposal has been put forward by the New Zealand administration to drop the Morse test as an international requirement and is due to be discussed during the 2001 World Radio Conference. Whilst we are considering our own national position, we see merit in the argument that the Morse test should cease to be an international obligation. Removing it would allow administrations a degree of flexibility and, should a decision be made to remove the Morse test in the future, would simplify procedures."

The amateur wrote back on April 25th, "From your letter it would appear that no decision on the future of the Morse code test will be taken until the year 2001?! Why such a delay, and is it not possible in the meantime for the UK to introduce some interim measures of its own?"

On May 26, 1998 the RA wrote that "We are currently discussing interim measures with the RSGB regarding the future of Morse." The RSGB and the RA are now considering a new class of amateur license which gives full HF access to Class B (No Code) Licensees who pass a 5 words-per-minute code exam.

The RadCom announcement which was worded: "The Society hopes that the RA will support this approach," made it sound like Morse de-emphasis was the idea of the RSGB. No so, said our UK correspondent. "...the impetus for change has really come from the Radiocommunications Agency, our equivalent of the FCC, and not from the RSGB as the (RadCom) leader suggests! All correspondence that I have generated in the last two years on No Code have been met with a positive response from the RA, but silence from the RSGB."

HANDICAPPED AMATEUR PARTICIPATES IN UNUSUAL PUBLIC SERVICE ACTIVITY

The May 31st *Dallas Morning News* reported in a feature story that disabled ham operator, Steve McCaghren, N5\JB is one of twenty members of the *Irving Citizens on Patrol.* ICOP is a crew of volunteers trained by the Irving (Texas) Police Department to spot illegal automobile parkers taking handicapped spaces. "As a disabled person, he saw the program as a way of fighting back against people who violate the rights of the handicapped." Not everyone is happy with what he does!

The City of Irving is one of about a half a dozen cities in Texas that have a citizen parking patrol targeting handicapped parking violators. "A state law allows municipalities to set up such programs."

Each illegal handicapped parking ticket McCaghren writes represents $108.00 to the City of Irving. Steve has already written more than 350 in less than six months. He says that ICOP fattened the city coffers by "...something like $25,000" last year alone. His team of three usually patrol on Saturdays and Sundays. N5VJB says he has been to court three times, and won three times.

HIGH-TECH WIRELESS TRANSPORTATION SERVICE 5 GHz band "lightly used" by hams, FCC says

In response to a *Petition for Rulemaking* (RM-9096) filed by the Intelligent Transportation Society of America (ITS America), the FCC proposed at a June 11 public meeting to allocate 75 MHz of spectrum on a co-primary basis at 5.850-5.925 GHz (a secondary Amateur Radio band) for a new mobile radio service intended to improve highway safety and efficiency. The FCC suggested that hams could change frequencies or reduce power if interference to the new service becomes a problem.

The proposed service is called *Dedicated Short Range Communications* (DSRC). It is an advanced version of the RF identification tags that enable drivers to automatically pay tolls or gain entry to parking lots. Many of these RF ID systems are at 902-928 MHz, but some are expected to migrate to the 5 GHz band.

DSRC is expected to bring a new world of wireless "E-commerce" capabilities, vehicle radars, hazard alerting, and even hands-free driving in "platoons" of cars steered from afar by computers. Roadside and sign-mounted DSRC radios would exchange data with cars.

ITS America said, "This allocation will enhance the

efficiency of use of the transportation infrastructure, improve mobility and reduce traffic congestion, enable quicker emergency incident response from public safety agencies, improve safety inspections of commercial vehicles while reducing costly weigh station and border crossing delays, reduce health care costs attributable to traffic accidents, improve the management and security of the flow of hazardous materials throughout the nation and help realize billions of dollars of gain in economic productivity."

The 5.650-5.925 GHz spectrum is allocated to the Amateur Radio Service on a secondary basis in ITU Region 2. The U.S. Amateur uses of this band include satellite uplinks and downlinks, bouncing signals off of the Moon ("Earth-Moon-Earth" or EME), weak-signal and beacon operation. The amateur (space-to-Earth uplink) satellite band at 5.65-5.67 GHz and (Earth-to-space downlink) satellite band at 5.83-5.85 GHz are not impacted by this proceeding. The 5-cm Phase 3D satellite uplink frequency is 5668.675 MHz.

The American Radio Relay League (ARRL) expressed concern about the petition during the comment phase. The band is "...necessary for future development of wideband amateur digital transmissions and video," ARRL told the FCC, adding that "...the compatibility between amateur uses of the band on a secondary basis, and the operation of co-primary ITS DSRC facilities in the same band, is as yet unexplored and unknown."

"It would appear that 'interference free' operation is both anticipated and perceived as necessary by ITS America. This brings into serious question the compatibility between DSRC systems and other incumbent users of the band. The urgency of conducting compatibility studies prior to conclusion of any allocation decisions in response to the petition is thus significant," ARRL said.

The DSRC spectrum would be allocated on a shared co-primary basis with military radar and international Earth-to-Space satellite systems. The FCC envisions that the Amateur Service would continue to have access to this spectrum on a non-interference basis.

"The secondary amateur radio allocation which overlaps the band requested by ITS America appears to be lightly used," the FCC said. "We acknowledge that amateur operations are permitted to operate at up to 1.5 kW PEP output with high gain antennas which could interfere with DSRC receivers if operated on similar frequencies in the same geographic area."

"Nevertheless, amateur operations have access to 275 megahertz in the 5.650-5.925 GHz band and we believe any amateur use of the 5.9 GHz range could be engineered to avoid DSRC operations. Also, amateurs may be able to continue use of these frequencies in rural areas where DSRC applications may not be extensively deployed. We anticipate that any interference problems that may develop between amateur stations and DSRC operations could be resolved by changing the frequency of the amateur operation in order to protect primary status operations or by other engineering techniques, such as power reduction or directional antennas."

The NPRM requests comment, however, on the spectrum sharing potential of DSRC operations with incumbent operations, including Amateur Radio and unlicensed Part 15 devices which may use a portion of the band.

Although the FCC did not propose detailed DSRC standards, it proposed a power limit for DSRC transmitters. "In addressing power limits, we take into account the likelihood that use of directional antennas will be crucial to DSRC operations in the 5.9 GHz range in order to increase frequency reuse, reduce interference with other spectrum users, increase accuracy and reliability of communications between roadside beacons and individual vehicles, and permit specialized DSRC applications such as triangulation," the Commission said.

"We believe most DSRC applications would reliably be achieved using less than 4 W EIRP, but in order to permit flexibility of services and system design, we propose to permit DSRC operations in the 5.9 GHz range to operate with a maximum transmitter output power of 750 mW with up to 16 dBi gain antennas (30 W EIRP)."

The petitioner, ITS America, is an association of vehicle manufacturers, highway authorities and technology developers -- many of whom are working on "Car of the Future" scenarios. The group was instrumental in lobbying for passage of the Transportation Equity Act for the 21st Century (TEA 21). This bill -- which President Clinton signed into law on June 9 -- will spend about $200 billion on highway and transit projects and research.

The TEA 21 law compels the FCC to consider "spectrum needs for the operation of intelligent transportation systems, including spectrum for the dedicated short-range vehicle-to-wayside wireless standard." The law requires the FCC to complete a rulemaking on DSRC not later than January 1, 2000. The DSRC *Notice of Proposed Rulemaking* (NPRM) is the FCC's first step toward complying with that Congressional requirement.

Importantly, however, the NPRM does not concern how to obtain licenses for DSRC -- or whether there will be any licenses at all. Therefore, no one yet knows who will be permitted to profit from DSRC, or whether DSRC licenses will be sold to the highest bidder as are most new FCC licenses nowadays. Nor did the FCC concern itself with rules for DSRC operation. The Commission is supposed to take up DSRC licensing and service rules sometime in the future.

At press time, no comment period dates had been released. ***(FCC Action by NPRM, ET Docket No. 98-95, June 11, 1998.)***